



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,505	01/28/2004	Robert W. Warren JR.	STL11661	5517

7590 08/29/2006

Seagate Technology LLC  
1280 Disc Drive  
Shakopee, MN 55379

EXAMINER
----------

MARTINEZ, DAVID E

ART UNIT	PAPER NUMBER
----------	--------------

2181

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/767,505

Applicant(s)

WARREN, ROBERT W.

Examiner

David E. Martinez

Art Unit

2181

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/28/04 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

FRITZ FLEMING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

The drawings are objected to because figure 4, step element 415 appears to be logically mislabeled as to the outcome of acknowledging “yes” and “no. Shouldn’t “yes” direct the process flow towards step element 420 rather than loop it back to step element 415? I.e. shouldn’t the labels for “Y” and “N” be swapped/reversed?. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2181

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4,7-10, 13-18 and 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication No. 2003/0088638 A1 to Gluck et al. (hereinafter Gluck).

1. With regards to claim 1, Gluck teaches a generic host interface for a data storage device comprising:

a channel select bit encoder [fig 1 element 32] to assert one or more channel select bits indicating one or more virtual channels through which the host interface will communicate over a data bus [paragraphs 45 and 53 – element 32 maps a virtual path selected/used for data interfacing];

a virtual channel controller [fig 1 element 32] to establish a connection with a media controller [fig 1 element 42] of the data storage device based on the virtual channel indicated by the one or more channel select bits and perform transfer of data over the data bus [paragraphs 12-18, 45 and 53]; and

a communication controller [fig 1 element 32] to implement a communication protocol for communication with a host and transfer data to and from the media controller via the connection based on the communication with the host [paragraphs 55-57].

2. With regards to claim 2, Gluck teaches the host interface of claim 1, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to transfer data between the host interface and the media controller [paragraphs 12-18, 45 and 53].

3. With regards to claim 3, Gluck teaches the host interface of claim 1, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to

Art Unit: 2181

transfer control signals between the host interface and the media controller [paragraphs 12-18, 45 and 53].

4. With regards to claim 4, Gluck teaches the host interface of claim 1, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to transfer side band information between the host interface and the media controller [paragraphs 12-18, 45 and 53, transferring data over a channel requires the use signals. Signals have an upper and lower amplitude as well as a frequency. The side of a signal having the upper amplitude is called the upper side band and the side of the signal having the lower amplitude is called the lower side band thus a channel communicating a signal transfers side band information].

5. With regards to claim 7, Gluck teaches a data storage device media controller comprising:

a channel select bit decoder [fig 1 element 42] to decode one or more channel select bits from a host interface indicating one or more virtual channels through which the media controller will communicate over a data bus with the host interface [paragraphs 45 and 53 - element 42 reads the mapped virtual path to select/use for data interfacing];

a virtual channel controller [fig 1 element 42] to establish a connection with the host interface [fig 1 element 32] based on the virtual channel indicated by the one or more channel select bits and perform transfer of data over the data bus [paragraphs 12-18, 45 and 53]; and

a communication controller [fig 1 element 42] to transfer data to and from the host interface via the connection [paragraphs 55-57].

6. With regards to claim 8, Gluck teaches the media controller of claim 7, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer

Art Unit: 2181

connection to transfer data between the host interface and the media controller [paragraphs 12-18, 45 and 53].

7. With regards to claim 9, Gluck teaches the media controller of claim 7, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to transfer control signals between the host interface and the media controller [paragraphs 12-18, 45 and 53].

8. With regards to claim 10, Gluck teaches the media controller of claim 7, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to transfer side band information between the host interface and the media controller [paragraphs 12-18, 45 and 53, transferring data over a channel requires the use signals. Signals have an upper and lower amplitude as well as a frequency. The side of a signal having the upper amplitude is called the upper side band and the side of the signal having the lower amplitude is called the lower side band thus a channel communicating a signal transfers side band information].

9. With regards to claim 13, Gluck teaches the media controller of claim 7, wherein the connection with the host interface is a peer-to-peer connection [paragraphs 12-18, 45 and 53] and the media controller limits access to a storage medium of the data storage device through the peer-to-peer connection [paragraph 43 only allows access to 256 "storage mediums" of the data storage device].

10. With regards to claim 14, Gluck teaches the media controller of claim 13, wherein the media controller limits access to the storage medium [fig 1 elements 36 and 38] based on one or more registers [fig 1 elements 44] relating to each of the one or more virtual channels [paragraph 43, 46 – the use of only 256 Logical Sussystems (LSS) limits access to storage mediums not within that particular range], in registers indicating a range of addresses on the

Art Unit: 2181

storage medium that may be accessed via the related virtual channel [fig 1 element 44 stores logical descriptors (addresses) in registers of storage volumes].

11. With regards to claim 15, it is of the same scope as the combination of claims 1 and 7 above and thus is rejected under the same rationale.

12. With regards to claim 16, it is of the same scope as claim 2 above and thus is rejected under the same rationale.

13. With regards to claim 17, it is of the same scope as claim 3 above and thus is rejected under the same rationale.

14. With regards to claim 18, it is of the same scope as claim 4 above and thus is rejected under the same rationale.

15. With regards to claim 21, it is of the same scope as claim 13 above and thus is rejected under the same rationale.

16. With regards to claim 22, it is of the same scope as claim 13 above and thus is rejected under the same rationale.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 11 and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. 2003/0088638 A1 to Gluck et al. (hereinafter Gluck) in view of US Patent No. 6,763,405 to Sardo et al. (hereinafter Sardo)

17. With regards to claim 5, Gluck is silent as to the host interface of claim 1, wherein the communication controller transfers data to and from the media controller synchronous with a

clock in the host controller, however, Sardo teaches a host transmitting packets synchronously with a clock in the host controller to a peripheral for the benefit of maximizing transmission throughput to the peripheral [column 1 lines 23-27].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gluck and Sardo to have the communication controller transfer data to and from the media controller synchronous with a clock in the host controller for the benefit of maximizing transmission throughput to the peripheral.

18. With regards to claim 11, it is of the same scope as claim 5 above and thus is rejected under the same rationale.

19. With regards to claim 19, it is of the same scope as claim 5 above and thus is rejected under the same rationale.

Claims 6, 12 and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. 2003/0088638 A1 to Gluck et al. (hereinafter Gluck) in view of US Patent No. 5,790,811 to Hewitt.

20. With regards to claim 6, Gluck is silent as to the host interface of claim 1, wherein the communication controller transfers data to and from the media controller based on a quadrature handshake model, however, Hewitt teaches exchanging a sequence of ready and acknowledgement signals prior to a transferring data to and from a source and a destination (a "quadrature handshake model" as per applicant's specification page 8 lines 16-20) for the benefit of synchronizing the data source with the data destination for communication to take place [column 5 lines 11-39].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Gluck and Hewitt to have the communication controller transfer

Art Unit: 2181

data to and from the media controller based on a quadrature handshake model for the benefit of synchronizing the data source with the data destination for communication to take place.

21. With regards to claim 12, it is of the same scope as claim 6 above and thus is rejected under the same rationale.

22. With regards to claim 20, it is of the same scope as claim 6 above and thus is rejected under the same rationale.

### ***Allowable Subject Matter***

The indicated allowability of claims 14 and 22 is withdrawn in view of the newly discovered reference(s) to US Patent Application Publication No. 2003/0088638 A1 to Gluck et al. Rejections based on the newly cited reference is shown above.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 7 and 15 have been considered but are moot in view of the new ground(s) of rejection. This Final Rejection is proper due to the change in scope (broadening) of independent claims which changes the scope of their respective dependent claims. Independent claims 1, 7 and 15 were amended to not require a "peer to peer connection" and an "address-less transfer". Claims 14 and 22 no longer require an "address-less transfer" which was previously recited in their respective independent claims (7 and 15), thus their scope has been changed as well, i.e. they have been broadened thus allowing for them to be rejected as per the above office action.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent Application Publication No. to Sandstrom teaches the use of virtual channels to access mass storage [paragraphs 30-31].

Art Unit: 2181

US Patent No. 6,725,297 to Askar et al. teaches using different virtual channels to communicate data.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

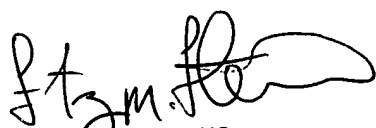
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Martinez whose telephone number is (571) 272-4152. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz M. Fleming can be reached on 571-272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2181

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEM



FRITZ FLEMING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100  
8/25/2006